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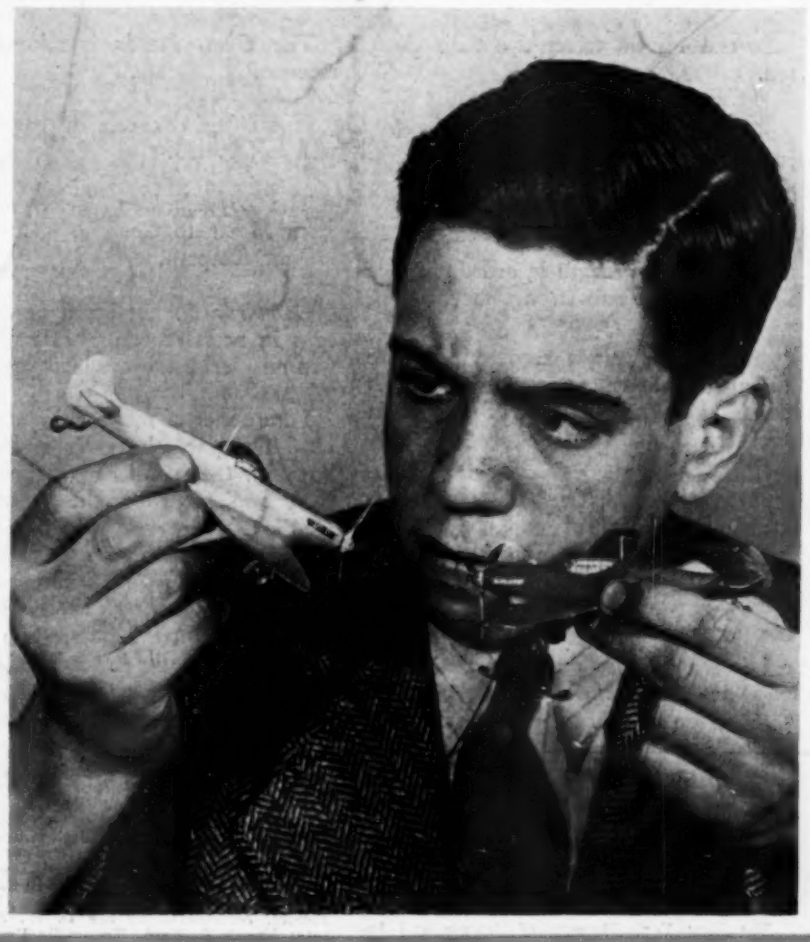
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



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February 14, 1942

Models for Uncle Sam

See Page 104

A SCIENCE SERVICE PUBLICATION

Do You Know?

Buddhist monks live chiefly on *soybean cheese.*

Pink oysters result from a harmless, yeastlike fungus.

Extraction of teeth is one of the oldest forms of punishment.

Tire wear on curves is 1,200% greater than on the straightaway.

The *spitting cobra* of Africa can eject its venom eight feet or more.

There is a complete loss of *vitamin C* in foods preserved by smoking.

Most *bacteria* will not grow in a five to eight per cent solution of salt.

Growing boys, active in sports, may eat more than 4,000 *calories* per day.

Phosgene caused 80% of the poison gas fatalities of the last World War.

Romans inserted a piece of snake's skin in a *tooth cavity* to stop the ache.

It takes from three to five years for *oysters* to grow to a marketable stage.

Mold-ripening of some of the "blue-veined" *cheeses* is still a mystery, even to their makers.

If every driver would reduce his average speed by 10 miles an hour he would get about 6,300 extra miles out of his *tires,* according to a major rubber company.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

AERONAUTICS

How can amateur scientists aid the Navy's program of building models for airplane recognition? p. 104.

How can you fly tail first without going backwards? p. 100.

ASTRONOMY

What triple feature will be seen in the March 2 evening skies? p. 101.

When will Mexico have its big telescope dedicated? p. 111.

BOTANY

How can you contribute experimentally to the field of plant breeding? p. 106.

MEDICINE

What new agency will help ration the nation's physicians? p. 101.

METALLURGY

What metal may be used as a substitute for tin? p. 102.

PHYSIOLOGY

How frequently is it safe to give your blood for a blood bank? p. 99.

PSYCHIATRY

Why do war neuroses yield readily to speed-up treatments? p. 99.

Several Hindu tribes dye their *teeth* red.

American hemp, grown in Kentucky, is being tested by the Army as a substitute for manila for rope.

The *orchard oriole* chooses grasses all nearly the same length in order to make the nest pliable and strong.

Advertising was a common practice among the ancient Greeks, according to D. A. Amyx, University of California lecturer.

International badminton champions Hugh Forgie and Ken Davidson recently demonstrated trick shots for CBS *television.*

It has been estimated that 75% of the children of the early part of the eighteenth century died before they reached the age of five.

The *Giant Panda* is related to the raccoon.

Hummingbirds can fly backward as well as forward.

The *Appalachian Trail,* stretching from Maine to Georgia, is the world's longest footpath.

Cowbirds do not build nests but lay eggs in nests of other birds which unwittingly raise the cowbird young.

Forerunner of modern *bicycles* was an 1816 Draisine—the rider rested his elbows on the handlebar, moved his feet back and forth on the ground as if walking.

An X-ray of Gainsborough's famous painting *"Blue Boy"* at the Henry E. Huntingdon Art Library, San Marino, Calif., revealed the lower half of a man's head, front face; the artist apparently began another portrait, then quit.

SCIENCE NEWS LETTER

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PSYCHIATRY

Hypnosis Urged For Speed-Up Treatment of War Neurosis

Combined With Psychoanalytic Skill It Provides Approach To Ills Caused By Recent Experiences

RECOVERY from war-caused nervous and mental disturbances among both civilians and fighting men can be speeded up by use of hypnosis, Dr. Leslie Farber and Dr. Charles Fisher, psychiatrists on the staff of Chestnut Lodge Sanitarium, told members of the St. Elizabeths Hospital Medical Society in Washington, D. C.

"Now is the time for young psychiatrists to avail themselves of our modern knowledge both of hypnotism and unconscious personality factors," these psychiatrists emphasized again and again.

Just as airplane and munitions manufacturers are giving up hand work on many processes in favor of machine methods that speed production for war, so psychiatrists working under war pressure to return mentally and nervously shocked men to efficient living as rapidly as possible must adopt short-cut methods of treatment, explained Dr. Farber.

He warned that hypnosis is only a means toward treatment, not the treatment itself. But when combined with modern psychoanalytic skill and knowledge, it can be a much more effective short-cut to treatment than it proved to be in the first World War.

"Nervous and mental breakdowns due to war conditions," said Dr. Farber, "lend themselves to short cuts in treatment because their precipitating cause is in the recent past, rather than in childhood. Hypnosis provides a quick method of uncovering recent conflicts and integrating them into the conscious personality."

Dr. Fisher described some of the experiments of recent investigators who have successfully combined psychoanalytic insight and techniques with hypnosis, to produce cures. Even cures of deep-seated childhood conflicts have been reported. Several cases, including depression, phobias, migraine headaches and sexual difficulties, have yielded themselves to a rapid course of psychoanalytic treatment carried out through hypnosis.

"During the last War," Dr. Farber told the psychiatrists at St. Elizabeths, "hypnosis was used with few exceptions as a kind of magic." He mentioned Dr. Ernest Simmel of Los Angeles as an outstanding exception.

"Like Dr. Coue, these early psychiatrists believed that hypnotic suggestion was enough to produce a miraculous cure. Even today there are many popular hypnotists who imagine they are curing people by commanding their symptoms to disappear.

"In many cases this works temporarily," explained Dr. Farber. "Under hypnosis people are extraordinarily suggestible and will obey the hypnotist in so far as they are able. They will not of course do anything dangerous or alien to their moral code. This has been demonstrated in a recent series of experiments.

"You can suggest, however, to a paralyzed patient that he is able to walk and if his paralysis is due to some unconscious psychological cause, he may astonish you by getting up and walking.

"Many forms of faith-healing," said Dr. Farber, "owe their success to a superficial or temporary removal of certain symptoms, while leaving the fundamental causes in the personality unchanged.

"The fault is not so much with suggestion itself as with the type of suggestions given. The more skill and knowledge the hypnotist has, the more thorough and effective will be the treatment. Getting rid of a symptom is not enough."

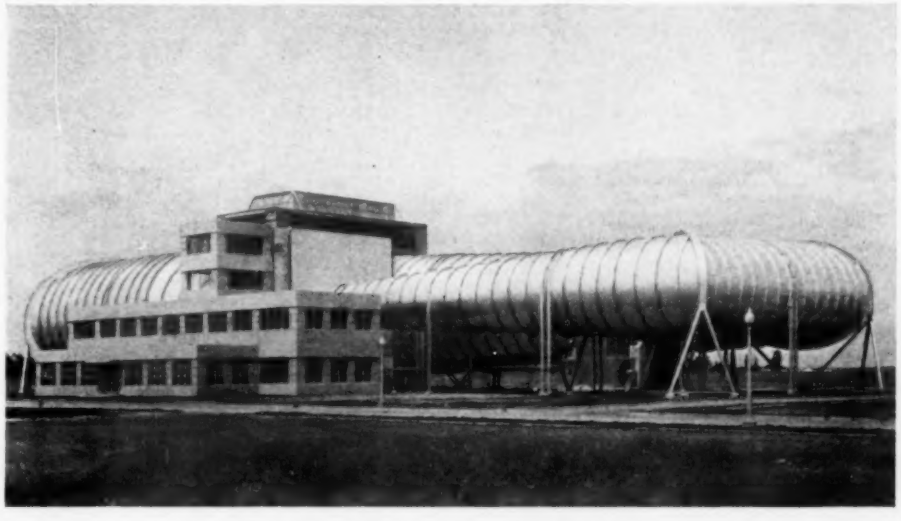
Science News Letter, February 14, 1942

PHYSIOLOGY

Average Person Can Give Blood Every Three Months

THE average healthy man or woman can safely give blood to blood and plasma banks for transfusions every three months, it appears from a report by Dr. Willis M. Fowler and Dr. Adelaide P. Barer, of the State University of Iowa College of Medicine (*Journal, American Medical Association,* Feb. 7.)

Second, third and subsequent donations to blood banks can be safely given as soon as the hemoglobin, the red coloring matter of the blood, has returned to normal. The average time for this after a donation of about one pint of blood is between 49 and 50 days, the Iowa investigators found from a study of 200 medical students, resident doctors and hospital employees. However, this can only be told by the blood test and the average healthy donor is likely to feel



NEW WIND TUNNEL

This 16-foot high-speed wind tunnel of the Ames Aeronautical Laboratory is devoted to urgent war problems. With another new wind tunnel at Langley Laboratory, this represents a 100 per cent increase in facilities for this purpose. Other wind tunnels are being constructed which will provide another 100 per cent expansion.

equal to giving a second pint of blood long before this. So unless the amount of hemoglobin in the donor's blood is determined regularly, the longer interval of three months between blood donations is advised.

Women need a little longer time than men to rebuild their hemoglobin stores, so the intervals between blood donations should be a little longer for them.

Hemoglobin stores are replenished at about the same rate after the fifth donation as after the first.

Small doses of iron increase the daily hemoglobin regeneration by nearly 50% and shorten the recovery time to 35.2 days, but the iron has progressively less effect after subsequent blood donations than after the first one.

Science News Letter, February 14, 1942

ARCHAEOLOGY

Finds Prehistoric Rag Is a Good Sterile Bandage

Cooperating Peruvian and U. S. Archaeologists Make Unusual Find Among the Debris in Ancient Trash Pile

COOPERATING with Peruvian scientists, United States archaeologists have been digging into a 10-foot-high trash pile of the Incas, which accumulated centuries ago beside the lofty Temple of the Sun at the holy Incan city of Pachacamac, in Peru.

In a first report of discoveries to the Eastern States Archaeological Federation, Philadelphia, Dr. William D. Strong of Columbia University said that masses of textiles, plant material and pottery recovered from the debris are expected to provide a long list of plants and animals that were used by this Indian civilization.

Heretofore, archaeologists have known the Incan Empire's cultural record mainly from what the Indians chose to place in graves.

Despite winter fog over Pachacamac, which is close to the Pacific Ocean, the temple debris was found amazingly preserved.

"I was astounded," said Dr. Strong, "to see a workman whose foot had been slightly injured reach into the wall of the cut we were digging, pull out and shake off an Incan rag and tie it around his foot with a piece of Incan cord. He went right on working before we could fetch the first aid kit.

"Since no Spanish objects occurred in the midden (refuse heap), it is obvious that this improvised bandage was made long previous to 1532, and, I may add, it proved to be quite sterile!"

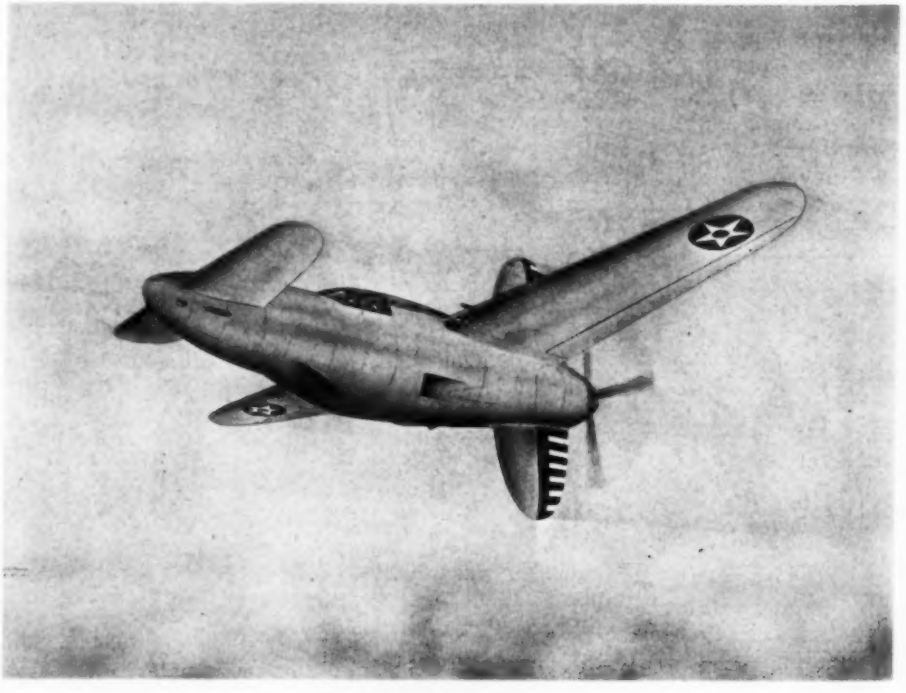
Pachacamac, a Mecca for Indian pilgrims from distant places throughout centuries before the Incas formed their Indian empire, is a ruined site of tremendous interest for South American prehistory. It has been estimated that at least 60,000 Indians were buried there, and many graves have been examined. Recently, Dr. Julio Tello, one of Peru's outstanding archaeologists, has been making extensive and important excavations of the architecture, Dr. Strong reported.

From cutting vertically into refuse heap accumulations, layer on layer, it is possible to learn more about the time sequences of Indian cultures that Pachacamac knew. Below the Incan debris, Dr. Strong found no less than 33 feet more debris of pre-Incan times, dumped there perhaps by temple attendants and pilgrims.

Dr. Strong's address before the Federation is one of the first revelations of what is being achieved by the ten archaeological expeditions launched in the Americas by the Institute of Andean Research last summer. Financed by about $100,000 from the Office of the Coordinator of Commercial and Cultural Relations between the American Republics, the expeditions are bringing together archaeologists in the republics to work on the difficult problem of establishing a clearer chronology for the high Indian cultures.

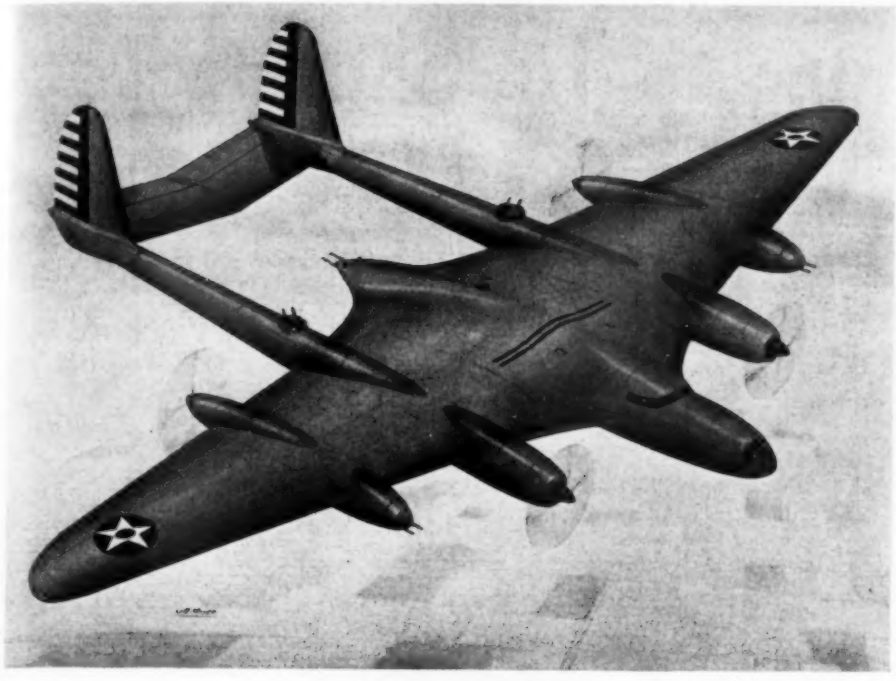
A framework of arranging events in order is needed, Dr. Strong explained, if we are to understand how the high civilizations of the Indians were interrelated, and how they have influenced modern history, geography, botany, and trends in our economics and sociology.

Science News Letter, February 14, 1942



THE "CANARD"

Don't be startled by the design of this airplane of the future from the drawing board at the Army Air Corps' Wright Field. "To the impartial physicist," one of the officers explains, "a propeller on the tail is no more odd than a propeller on the nose." Perhaps a tail on the nose should be no more surprising. Vision in this plane would be excellent, it is claimed. And having the propeller at the rear eliminates rough air over the airplane.



WHALE OF A PLANE

This 4-engine bomber of the future designed at Wright Field has two pusher propellers and two tractors. The arrangement makes for an advantageous placing of the fire power. The Air Corps suggests that this design might be called the "Air Whale." Perhaps "Shark" might be appropriate.

ASTRONOMY

Whipple Comet and Eclipse To Provide Astronomical Show

Extra Attraction Will Be an Occultation of Bright Star, 59 Leonis; Comet Won't Be Seen By Naked Eye

WHEN the moon is totally eclipsed on March 2, a splendid view of the new comet recently discovered by Prof. Fred L. Whipple will be possible through even a small telescope.

Computations at Harvard Observatory, where the comet was discovered, showed that the comet is headed for the place in the sky where the moon will rise on the early evening of Monday, March 2, eclipsed by the sun. With the moon's light thus shielded, a good look at the Whipple comet, a little west of the moon, will be possible although the moonlight a few days before and afterwards will blot it out.

As an extra attraction there will be an occultation, or a covering of a bright star, the 5th magnitude object called 59 Leonis, which is much brighter than the comet (which will be about 8th magnitude).

This triple attraction is expected to cause almost all amateur astronomers with small telescopes, many of them made by themselves, to go into action that evening.

On February 19 Whipple comet will pass close over or just north of second magnitude star Denebola in the tail of Leo the Lion. Denebola rises about 9 p.m. EWT, February 15, fifteen degrees north of east. Astronomers cannot predict whether or not the comet will reach naked-eye visibility, but the chances are against its doing so.

At present the comet is between eighth and ninth magnitude, visible only in two-inch refractor or six-inch reflector. An amateur would probably need a chart to find it.

On February 19 the comet will be of the eighth magnitude and about March 15 it will be seventh magnitude which is still far below naked-eye visibility for comets.

For amateur astronomers, its position at midnight on February 13-14 will be right ascension 12 hours 10 minutes, declination north 18 degrees 31 minutes. This region of the sky is full of nebulae (the celebrated Coma-Virgo region) so amateurs should watch for motion of comet to be sure they have it and not a nebula. The orbit calculated by R. N. Thomas is a parabola, which means that the comet has come in from outermost space far beyond the sun's whole family of planets, and after swinging around the sun, will return there and never be seen again.

The comet will pass closest to the sun April 30 at a distance of 135,000,000 miles. It is coming down into our system at a high angle, nearly 80 degrees, which means that it will plunge through the plane of the ecliptic then shoot up and out again.

Science News Letter, February 14, 1942

MEDICINE

New Agency To Help Ration Nation's Doctors

PAS (officially the Procurement and Assignment Service under the Office of Defense Health and Welfare Services) has just been given the job of helping the Selective Service System ration the nation's supply of medical doctors, dentists and doctors of veterinary medicine.

"Since war was declared, the shortage of these professional men has become acute," Brig. Gen. Lewis B. Hershey, director of Selective Service, points out in a memorandum to state directors (*Journal, American Medical Association,* Feb. 7.)

Each of them, consequently, must serve "where he can render the greatest professional service to the nation."

Local Selective Service boards when classifying doctors, dentists and veterinary doctors are therefore expected to consult PAS committees of the corps areas on the availability of such professional men in the community. The authority of the Selective Service System to classify registrants is not affected but the information from PAS will help in making the "most effective allocation of medical manpower."

Science News Letter, February 14, 1942

METALLURGY

Silver Lining to Tin Shortage

U. S. Treasury's Great Hoard of 100,000 Tons of Silver May Replace Metals Cut Off by Japanese

By DR. MORTON MOTT-SMITH

THERE is a silver lining to the acute shortage of tin that Jap invasion of Malaya is likely to cause. And to the billions of cans in which so much of our food reaches us, there is, literally, the possibility of silver linings.

For years Uncle Sam has been storing up great stocks of silver. Forgetting for the moment the cost in dollars and cents and the political reasons, this silver hoarding by the government may well prove to be a great help in this war. There are well over 100,000 tons of silver in our vaults, as much silver, weight for weight, as the amount of tin used in a normal year.

For copper as well as tin, noble silver can be an effective substitute.

Copper and tin in war have a rendezvous with death. They fly in bullets, whirl in the rotating bands on shells. These strategic metals enter into other vital production and construction for war. And there is not enough to go around, even in the case of copper for which the U. S. A. is relatively self-contained. In plating, silver can substitute for chromium and nickel, both metals short for war production.

Will Go To Work

You can expect silver to come out of its Treasury vaults and get to work, taking the place of tin that the Japs have seized and releasing copper and other metals for active service. Silver is going to be drafted for the duration.

Nickel is apparently on its way out of the nickel, the familiar five-cent piece. Silver may replace it and part of the copper too. The old coin of three-quarters copper and one-fourth nickel will be half silver, half copper.

There are many metals less costly than silver that today are actually more precious so far as our war effort is concerned. Silver sells for $5 a pound, which is about ten times the price of tin. Realize, however, that dollars and cents do not mean in war what they do in peace.

You can today go out and buy almost any quantity of silver that you want and can pay for. It is the cheapest metal that can be obtained without priorities. Just try to go out and get some tin, copper or lead, or even steel, without proper governmental authorization and see what happens!

(That $5 price per pound is in terms of ordinary or avoirdupois pounds, not the troy or apothecaries' pound that is employed when silver is used in coinage or jewelry. And you don't have to bother too much about the fact that the price of silver is 34.75 cents per troy ounce in the metal markets whereas the U. S. government in Congressional mandate generously pays 71.11 cents per troy ounce for newly mined domestic silver, which is over $10 per ordinary pound.)

Better Than Copper Electrically

Except for price, there would be a great use of silver in many practical ways. Electrically silver is better than copper.

Silver bus bars, on great power-plant switchboards, would be even better conductors of electrical power than those now made of copper. These are the heavy bars that carry the main current supply, the arteries of an electrical system.

Silver plating on cans would release huge quantities of tin for direct war uses.

Silver as a hardener in solder and bearing metals is already accepted in the airplane industry; its employment in these fields could be profitably extended.

These and many other industrial uses of silver have been investigated by the National Bureau of Standards.

For some purposes a part at least of the huge government hoard could be lent or leased with no cost whatever except that of the mechanical manipulations necessary to convert the ingots into the desired forms and back again into ingots when the war is over, and so returned to the vaults. We could use our silver and have it, too.

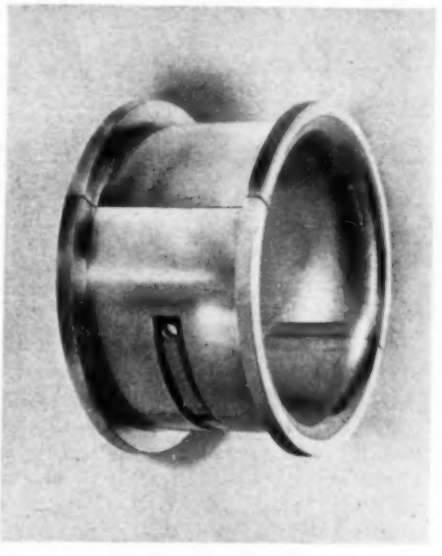
As bus bars in the great aluminum and magnesium plants now building under government supervision, the silver would be as safe as in the vaults where it now rests. These plants will operate 24 hours a day, seven days a week. They will be guarded constantly. The bus bars will be "hot" all the time, carrying tens of thousands of amperes of electric current. No thief could safely lay hands on this silver.

In these plants alone, 25,000 tons of copper could be saved, to make our shells fly straight to their marks. Another 50,000 tons could be saved by making a similar substitution in other plants requiring large conductors to distribute huge quantities of electricity. These are the estimates made by Robert E. McConnell, chairman of the Engineers Defense Board, New York City.

Tin Is Now Precious

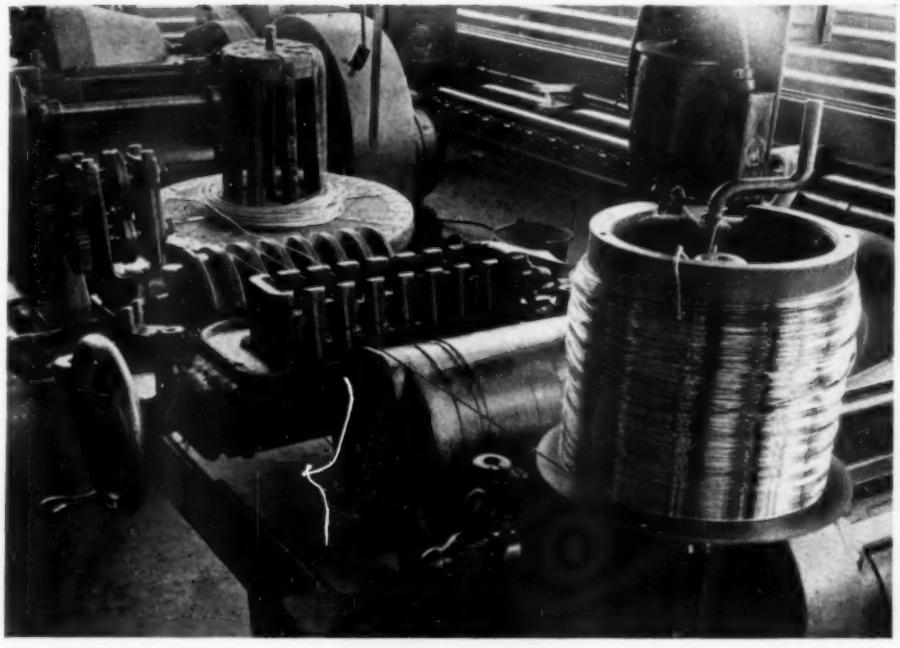
Tin is now a most precious war metal and must be conserved at all costs, even if we have to substitute, at times, more expensive silver for it.

Eight-tenths of our tin came from British Malaya, the Dutch Indies, and other parts of Asia, two-tenths from other parts of the world. An almost microscopic amount came from some small mines in Alaska, South Dakota, Montana and New Mexico. Other than these, we have no tin mines, and geolo-



FOR AIRPLANES

This is a silver-lined bearing for an airplane motor. A heavy coating of silver is applied by electroplating and is then machined to the desired thickness. Bearings such as this one stand up to heavy loads better than ordinary ones.



SILVER WIRE

Electrically, silver is better than copper. Here is shown some silver wire which may be used to substitute for the scarce copper in the war emergency.

gists assure us that there are no important ores in this country.

As a lining for tin cans, silver would not be much more expensive than tin, because the coating may be made thinner, especially if an under-coating of some other metal is put on first. Indeed, the extra cost would not be due so much to the silver as to the altered methods of manufacture involved.

The silver must be electroplated. Tin plate for the canning industry is made mostly by running a strip of sheet iron through a bath of molten tin. It is a fast and cheap process. The coating must be fairly heavy, not so much to preserve the contents as to permit rapid automatic soldering of the folded side seam.

Impractical With Tin

If thin electroplated coatings of tin or of any other metal are used, another method of sealing must be used, such as welding, brazing or the production of a seamless tube for the can body. This would require a complete making over of the whole canning industry. Great quantities of machinery, containing much valuable steel, would have to be junked and new machines built. This is perhaps impractical.

The canning industry is indeed a huge baby. In 1940 it made 17 billion tin cans, used up three-quarters of our tin plate and 60% of all our tin. A saving of even 10% in the tin used for cans would therefore loom larger in the total than a similar saving in any other branch of the industry.

Beer drinkers object to the taste of beer from a tin can. This is the reason for the lacquer or "keg-lining" that is put over a tin base. One part of tin in 10,000,000 of beer is enough to cause the latter to become cloudy. This is so far beyond the usual chemical tests for tin, that beer itself could be used as a supersensitive test for the presence of tin.

Silver-lined beer cans, however, are free from these troubles. Beer cans with a silver lining would have to be heavily coated and, because of their value, would probably be made returnable. Many other uses could be found for such returnable containers.

Silver can also be extensively substituted for tin in solder, and in many cases would not be any more expensive. The Advisory Committee on Metals and Minerals of the National Academy of Sciences made an investigation of this and found that a 2½% silver solder was the equal of a solder composed of a 45% tin and 55% lead and would cost no more, at least for the materials.

Silver solder has always been considered superior to the tin-lead solders but has in general been used only for the finer work on account of its higher price and the higher temperatures required. But the committee found that this higher price was due mostly to the small demand for it rather than to the cost of the materials.

In 1940, more than 11,000 tons of tin were used for solder. All of this could be saved if an all-out substitution with silver were made.

Silver can replace tin in bronze and other bearing metals—often to advantage. Silver linings are already used in heavy duty aircraft bearings and probably cost no more than a really good copper-lead bearing. Gold has also good bearing qualities, and gold-plated bearings are quite possible.

Germany has developed a number of bearing metals that do not contain tin. Tin there is used only for high-speed bearings.

Silver is very useful for brazing copper pipes as in refrigerating and air-conditioning apparatus and even in boilers.

It is useful in lining pipes for certain chemical operations. It is an excellent catalyst.

Would Purify Water

It has germicidal and fungicidal properties and can be used for the purification of water. It has extensive uses in medicine and in photography and appears in many chemical reagents.

Use of silver for tableware, utensils, vessels, ornaments and jewelry, both solid and plated, might convey the impression that huge quantities are already being used. Yet the total amount of silver used in 1940 in this country for all industrial purposes amounted to only 1,400 tons. The U. S. Treasury purchases for 1940 amounted to 7,000 tons, a five years' industrial supply.

The old superstition of the fairy tale was that bullets of silver were the only ones that would wound a wizard. In a very different and real way, silver used in production and war may play a part in lifting from the world the curse of Nazi and Jap aggression.

Science News Letter, February 14, 1942

● RADIO

Saturday, February 21, 1:30 p.m., EWT

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Prof. George F. Bush, of George Washington University, will discuss George Washington as an engineer.

Listen in each Saturday.

Tuesday, February 17, 10:15 p.m., EWT

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.

AERONAUTICS

Science Clubs of America To Cooperate With Navy

Cooperation in the Navy's program, designed to train Americans—civilians as well as naval personnel—to know friendly airplanes from foes, is an opportunity for the members of 967 Science Clubs of America and readers of the SCIENCE NEWS LETTER and newspapers cooperating with Science Service.

To train Navy personnel in aircraft recognition and range estimation for gunnery practice, the Navy urgently needs 500,000 aircraft models made exactly to scale. This number includes 10,000 models of each of 50 different types of fighting planes.

Civilians, too, should train themselves to know the U. S., British, German and Japanese planes and be able to distinguish friend from foe.

Exact scale models of the fighting aircraft which can be made by anyone handy with a knife and other simple tools will be extremely helpful in this training, it is believed.

Through the U. S. Office of Education, Secretary Knox is asking the students of 26,000 high schools in the United States to build these models for the Navy.

You, too, can help.

First sets of working drawings will be sent to the cooperating high schools through the Office of Education by Feb. 23.

Set of drawings, from which models meeting U. S. Navy needs can be made, are being released to newspapers by Science Service for the use of their readers and Science Club members. The first is printed on this page.

The scale to which the models are made is of extreme importance, it is emphasized by Navy officers. The Navy has adopted the scale of 1 to 72, or one inch equal to six feet. This is the same standard used by the British, based on their experience in the war, and will be used also by the U. S. Army and Office of Civilian Defense.

By using the same scale for all models it is possible for spotters to gain a true sense of proportion with regard to the various aircraft they will see in the sky.

It is also possible to suspend the models overhead and gain a true idea of what the actual aircraft would look like at a proportionate altitude. A model seen a distance of 35 feet from the eyes, for example, would look exactly the same size as the real airplane seen at a 2,500-foot distance.

A cadet flyer can observe the models through the standard ring sight used on aerial gun mounts and learn range as well as identification.

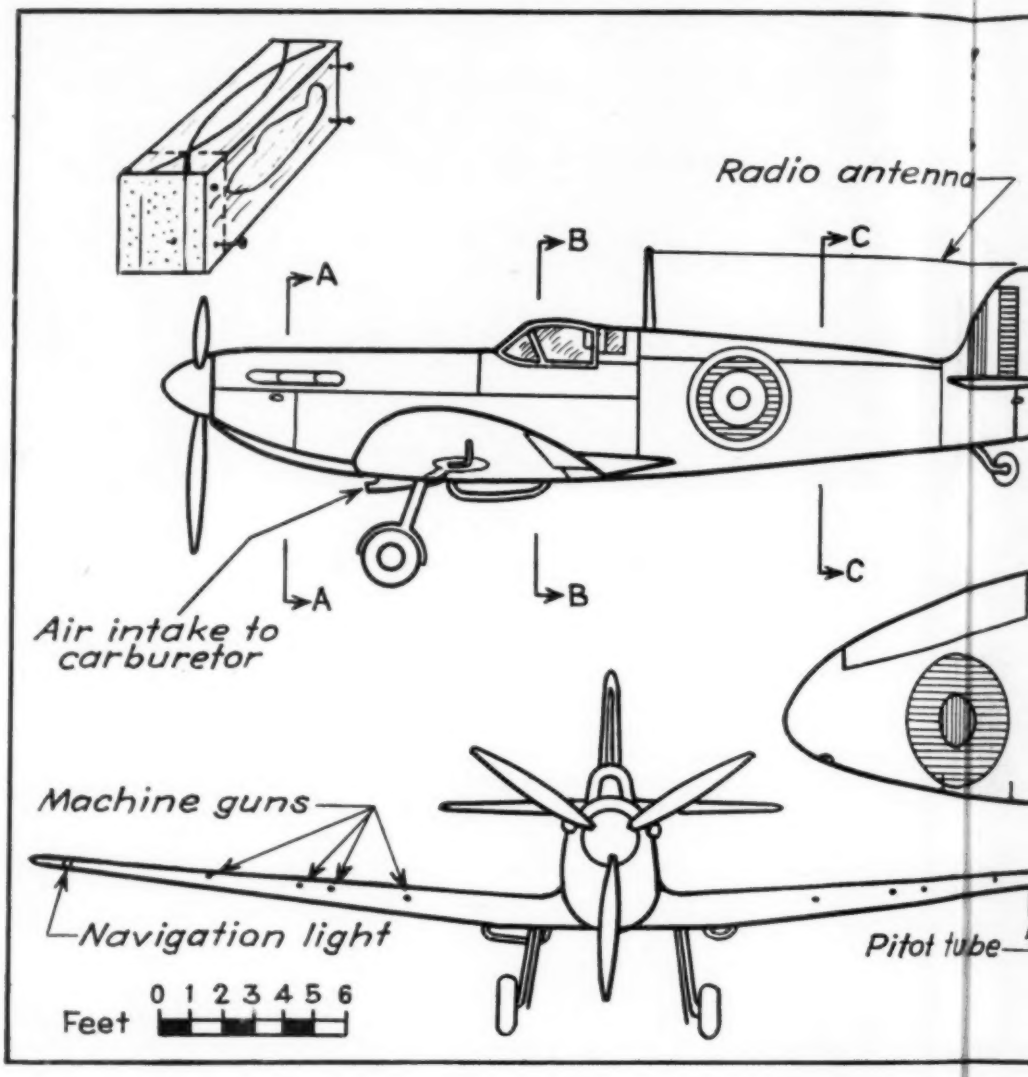
Qualified inspectors will review every model that is intended for the Navy. The little planes must be perfect in every detail.

Approved models will be sent to aviation units, ashore and afloat, through special committees set up locally.

Science News Letter, February 14, 1942

AERONAUTICS

Build These Aircraft R



By JOSEPH H. KRAUS

Science Clubs of America Editor

The entire field of model aircraft building is being stimulated to greater activity by the fact that the U. S. Navy is anxious to have model makers direct their attention to the building of true-scale models of fighting aircraft.

The Navy has decided that such scale models should be standardized along lines already established by our English compatriots; viz., all models should be built on a scale of one foot equal to 72 feet (1-72).

In an interview I recently had with a member of the Special Devices Section of the Navy, it was recommended that scale models of the following planes be built first: the British—Supermarine "Spitfire" II, fighter; the German—Messerschmitt Me. 109E fighter; the U. S. Army—Curtiss P40 "Tomahawk" fighter and the U. S. Navy—Grumman "Wildcat" F4F fighter. Accurately made models can be used for recognition purposes and will be invaluable to aircraft spotters.

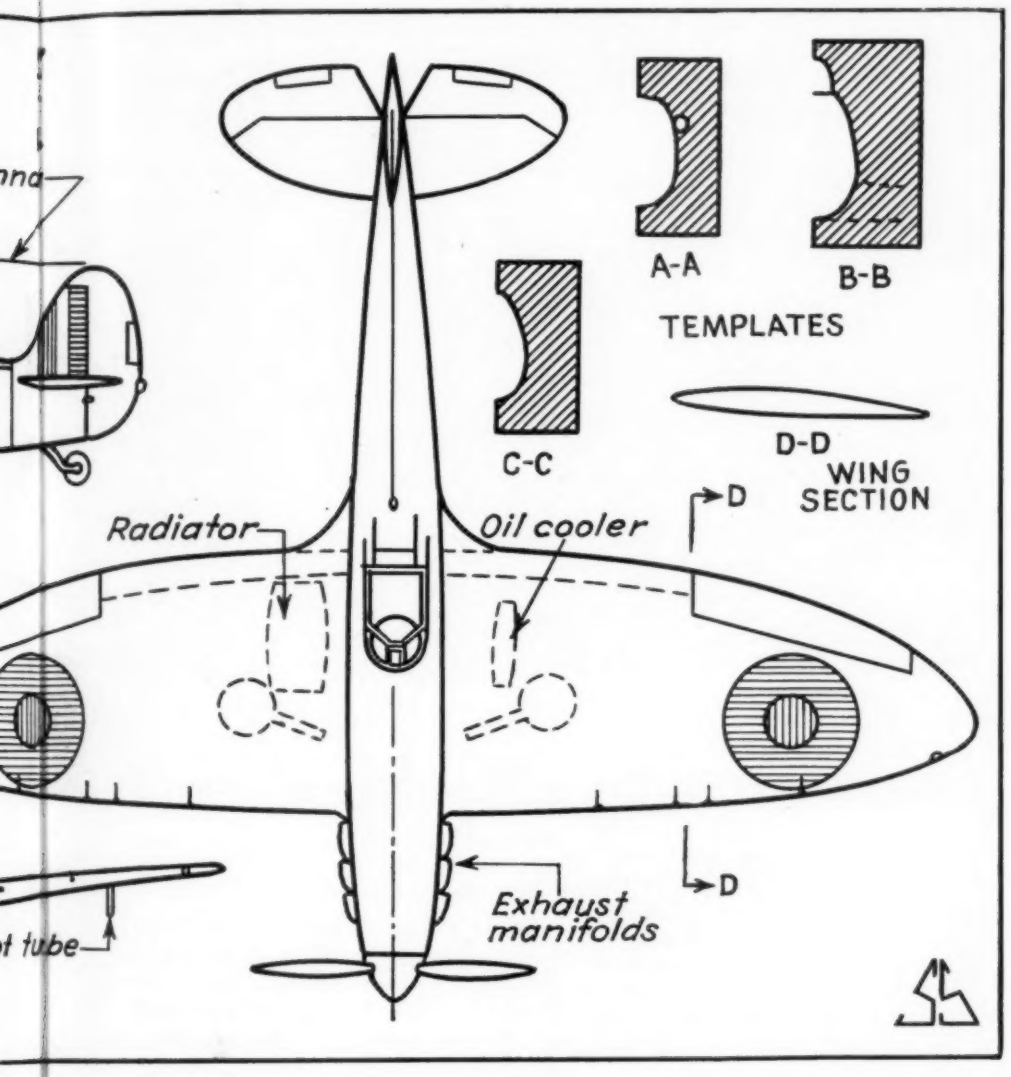
The first models I built from these drawings are shown on the front cover of this week's SCIENCE NEWS LETTER, held by Lewis Schaub, junior aviator.

Recognition of certain finer details, gained through the building of accurate models, guarantees rapidity of identifying the plane in question for the builder.

The plans given on this page are for the Supermarine "Spitfire" II. These plans are to exact scale. Your model, when completed, should be exactly the size of the drawings.

The full-sized craft is a single seater fighter built by Vickers-Armstrong,

ft Recognition Models



Ltd., Southampton, England. It is powered with one Rolls-Royce, 1,030 h. p. engine, which gives it a speed of 387 m. p. h.

Everyone familiar with building model airplanes will find little difficulty in this construction. (It will take about four days—spare time.) Trace the top and side views of the body on paper and paste these on the top and side of a block of wood 5½ inches long, 1¼ inches high and ¾ inch wide. Balsa should not be used. White pine stands up better, and these models will not need to fly. Make sure you line up the nose and tail. With a fret-, coping-, or jig-saw cut out the outline of the body —the top view first. Nail the block together at the edges and cut through again for the side elevation.

With a sharp knife trim roughly to shape, using templates frequently. Cut templates out of a visiting card. Wings and tail are cut to size. All final shaping should be done with "O" and "OO" sandpaper. Cut up into the fuselage to fit the wing, keeping it in one piece, tip to tip. Glue parts to the body with "airplane model" cement.

You may paint upper surfaces in brown and green, camouflage style. Paint under surface of wings and body, silver or light blue. Paint cockades above wings, blue with red center; on body, red, white, blue and yellow, with red at the center; on tail, red, white and blue stripes with red toward front.

Since painting of planes in war varies so much, however, it is unlikely the Navy will require this coloring. They may ask that all models be black.

Science News Letter, February 14, 1942

Science Observer Edition Sent to All Science Clubs

In order to allow members of science clubs to begin work immediately on the airplane models needed by the Navy, this Science Observer edition of the SCIENCE NEWS LETTER sent to all science clubs affiliated with Science Clubs of America, contains the first model plans.

Sponsors of science clubs who want the plans of the three models additional to the one shown on this page may receive them as a part of their special war-time Science Clubs of America service by writing a postal card to Science Clubs of America, 1719 N St., N. W., Washington, D. C., asking for airplane model plans.

Any group not so affiliated is invited to join. The affiliation fee is nominal and the requirements are simple. This invitation is extended especially to science teachers of high schools who wish to organize science clubs at this opportune time when there is a real job to be done.

Special mailings will bring to all science clubs details of the SCA war service program, listing many projects that official governmental agencies have suggested to aid in the war emergency.

NEWS OF CLUBS

AUSTIN, Texas—The Young, Thorp, Schultz Botanical Society at Austin High School stresses individual investigations and building one-person projects, which are exhibited each spring in a Science Fair held under the auspices of the Austin Junior Academy of Science. The club sponsored by Addison Lee, teacher of biological sciences, also is a member of Texas Junior Academy of Science and takes part in its meetings in the spring and fall. All clubs affiliated in the Austin Academy contribute to a $25.00 scholarship award to a graduating member for some outstanding scientific work.

JACKSONVILLE, Fla.—Members of the Science Club at the Robert E. Lee High School made a telescope which they expected to exhibit at the Florida Junior Academy of Science meeting. However, the telescope proved to be too large for easy transportation so the members had to modify their plans at the last minute, exhibiting instead an interesting display of leaves. The club arranges for every other meeting to be a trip through some industrial plant, factory, packing house, or into the fields for the collection of specimens. The sponsor is Leroy MacGowan, head of biology department.

SCIENCE CLUBS OF AMERICA

Sponsored by Science Service

SCA, under Science Service sponsorship, continues the pioneering activities of the American Institute of City of New York over the past 15 years and the Student Science Clubs of America which was merged with that movement. The American Institute continues to foster the regional activities of the junior clubs of the New York City area as a science center.

To effect close cooperation between the American Institute and Science Service, an advisory committee on SCA is being formed.

The principal SCA staff consists of Joseph H. Kraus, SCA editor, and Margaret E. Patterson, SCA membership secretary, based at New York in offices at 310 Fifth Avenue, also occupied by the American Institute.

Clubs are invited to become affiliated with SCA for a nominal $2 for 20 members or less. You can become an associate of SCA for 25 cents. Address: Science Clubs of America, 1719 N St., N.W., Washington, D. C.

BOTANY

Amateurs Can Contribute To Field of Plant Breeding

You Can Even Work in Winter If You Have Room Enough To Grow a Few Potted Plants Indoors; Use Colchicine

YOU DON'T have to be a Ph.D. in botany to make valuable contributions in the field of plant breeding. All you need is some seeds, a little colchicine —and plenty of interest in the subject, plus patience, and willingness to keep your garden-patch weeded. You can even work in the winter, if you have room enough to grow a few potted plants indoors.

What interested hobbyists can do in the science-aided evolution of new kinds of plants has been well demonstrated at the University of Oklahoma. Under the leadership of Dr. O. J. Eigsti, assistant professor of botany there, something over 300 amateur collaborators are scattered through 38 states.

The roll of Dr. Eigsti's far-flung army of scientific collaborators includes rich men, poor men (though presumably no beggar-men or thieves), doctors, lawyers, merchant-chiefs, as well as housewives, nurses, schoolteachers, ministers, policemen, court clerks, contractors, stockbrokers, miners, editors, and a host of others. When the job threatened to run away with the botanist's time, the WPA came to the rescue, with the approval of the Department of Agriculture.

One of the most promising results turned in thus far is a new variety of soybean, twice as big and heavy as its parent strain. This was produced by Miss Eunice Moore, a Tulsa, Okla., nurse. Bigger, brighter flowers from the ornamental plants, with new shapes and denser, greener leaves, are common results.

Not all the colchicine experiments bring forth giant flowers, Dr. Eigsti warns. Sometimes the thing most desired is greater height, or wider leaves, or earlier bearing, or drought resistance. No plant is to be rejected merely because it does not bring forth big flowers. All the qualities and characters of a new strain must be carefully examined in judging its possible value.

Dr. Eigsti developed the idea in his laboratory at the University of Oklahoma. He announced his willingness to supply a small quantity of colchicine to any person seriously interested in experimenting with plant breeding. At first he intended to limit the group to 100, but the wave of interest that had been aroused was just too great to check, and in the end more than 300 were participating in the work.

Colchicine is a yellow powder, extracted from the underground part of the autumn crocus, *Colchicum autumnale*—whence its name. It is an active poison, so that caution is necessary in handling it. It may cause skin irritation if handled too freely without rubber gloves, and it is definitely dangerous to get any of it into the eyes.

Three ways are commonly used, in treating plants with colchicine to induce genetic changes. First and simplest is to soak seed in a solution of the drug in distilled water. If you want to work it this way, have your pharmacist mix half a gram of colchicine in a pint of water. This should cost about 50 cents.

This stock solution can be used straight, or further diluted with water. Seeds can be soaked for varying lengths of time, from half an hour to several days, then rinsed off and planted. After they have germinated they should show the effects of the drug in stems, leaves, flowers—all parts of the plant. Their seeds should carry on the new developments into following generations.

A second method is to have the colchicine mixed in a colloid spray consisting of glycerin, water, and a vegetable or fish oil. This is sprayed on the plants to be treated with an atomizer. Such treatment produces irregular patches and areas of stimulated growth, from some of which buds and flowers originate, producing seeds that carry the newly originated characters.

Better control of effects is obtainable with the third method, which consists in having the colchicine mixed with lanolin (wool fat) in a ratio of one gram of powder to 100 grams of the fat. The resulting salve is applied to the growing tips of branches, producing on some of them strange flowers that bear the seeds of the new varieties.

A fourth method is to make up a mixture of colchicine, glycerin, water and alcohol, which is applied to growing seedlings with a brush.

Amateur experimenters should always remember to leave a certain number of plants untreated, for purposes of comparison. These, in the language of the scientist, are "controls." Without controls you cannot tell whether your experiment is working or not. The control, no matter what the nature of the experiment, is the mark of the truly scientific method.

Colchicine produces its strange effects on plants because it paralyzes the process of cell division at one very critical stage.

When a cell divides, the little rod-shaped heredity-bearing bits of protoplasm in its nucleus, called chromosomes, first line up at its center and each one divides in half. The number of chromosomes is thus doubled. Then half of the chromosomes retreat to opposite ends of the cell and a new cell wall grows in between them. Two new cells, each with the original number of chromosomes, are thereby formed.

In a colchicine-treated cell, this division of the doubled number of chromosomes, with retreat to opposite ends of the cell, does not take place. Instead, the enlarged cell remains, with the doubled number of chromosomes. Later, it divides, still keeping the increased chromosome number; and repeated divisions of this kind give rise to the new tissues and organs.

These "giantized" cells very often produce giantism in the new parts that develop from them, which accounts for the double-sized flowers and huge fruits so frequently seen in the colchicine-treated plants. They transmit their big cells, with doubled or even trebled or quadrupled chromosome numbers, to the embryo plants within their seeds, and thus give rise to new varieties.

Anyone seriously interested in carrying on experiments in plant breeding with the aid of colchicine should write to Dr. O. L. Eigsti, Department of Botany, University of Oklahoma, Norman, Okla. Dr. Eigsti can supply detailed information on where to obtain the colchicine, how to dilute it, time and methods of treatment, and recording of results. Experimenters must be prepared to carry on patiently for many months, and preferably for several successive seasons, scheduling regular hours every week to be devoted to the work.

"TO PROVIDE FOR THE COMMON DEFENSE, TO PROMOTE THE GENERAL WELFARE"

Reykjavik off the port bow!

TONIGHT, somewhere at sea, a man stands on the bridge of a freighter with the life line of a nation in his hands.

He is straining his eyes for sight of one of those islands which are our country's first line of defense. To these islands must be transported huge quantities of munitions and food. And the only answer is ships, ships, and more ships.

How is America meeting this tremendous responsibility? You'll get a fair idea at such great factories as the Westinghouse plant where the machinery to drive many of those supply ships is being built, or at the huge Westinghouse-operated Maritime Commission plant which is now being erected alongside it.

The "know how" that works 24 hours a day

There, in these factories is a dramatic example of how Westinghouse "know how" is doing a job for National Defense.

What is this "know how"? It is the ability to get things done in the best possible way—learned in building products for the general welfare and now used in building materials for the common defense.

The same skill and ingenuity that are building those turbines for the merchant fleet, not long ago built more efficient electric refrigerators and washing machines. Again, the research skill that developed intricate new radio equipment has found ways of utilizing that equipment in important defense work.

At 17 Westinghouse Divisions, and in the plants of more than 300 sub-contractors, our energies are almost exclusively turned to the creation of $400,000,000 worth of defense materials. It's our way of speeding the day when our "know how" will be serving you again—in the home, the farm, and the factory.

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		Lighting equipment

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WESTINGHOUSE ELECTRIC & MANUFACTURING CO., PITTSBURGH, PENNSYLVANIA

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Look inside these HOMES *and* SCHOOLS

"Last December we subscribed to your series of THINGS of science, and have enjoyed and profited by it many times since. Our five children are likewise gleaning knowledge I feel sure they would have missed otherwise."—Mr. and Mrs. H. G. Harding, Akron, Ohio.

"Everyone in the family gets a kick out of each month's package."—James J. Doheny, 4247 West End Avenue, Chicago, Illinois.

"The monthly units have been received right along regularly and have greatly impressed my grandson, as well as being a great help to him in his school work."—John H. Hosch, Gainesville, Georgia.

"I subscribed to THINGS of science for my son, Kimball, some time ago. He likes this service very much and when I asked him what he wanted as a gift, he said, 'THINGS of science'!" —C. L. Williams, 119 West 40th Street, New York, N. Y.

"It may be interesting to you that I keep the THINGS which you send me, for a week or so, and then present them to our high school at Thiensville, where they arouse the greatest interest."—J. O. Carbys, Thiensville, Wisconsin.

"You have a grand educational service and our little family has a special session together every time THINGS arrives."—Robt. R. Helmerichs, 730 Stinson Blvd., Minneapolis, Minnesota.

"I am a member of the local Board of Education, and after looking the THINGS of science over, I turn them over to the High School, where I feel they will do more good than anywhere else. The Principal of the school and the Science Teacher are much interested in them as well as myself."—Major A. B. Cox, Cherry Valley, New York.

"I wish to tell you some of the ways in which THINGS has come to my assistance during 1941. The meteor set aroused great interest at Girl Scout camp when we were studying the skies; the fingerprint set and the plastic magnifying glass interested our microscope club; I was just teaching insect pests when that unit arrived, and I was glad to find a boll weevil and a Japanese beetle, neither of which we find in our region; the synthetic materials made fine exhibits at a talk before a Womens' Club; the fossils will be invaluable when we reach that subject in Biology."—Virginia D. Wallis, 612 Bridge Street, Johnsonburg, Pa.

They have found the answer to these three wishes:

How can I get a sample of *this* new substance? or
What does *that* new product feel like? or
My son asked me about this discovery, and I want to make it more real to him—can you send me a *demonstration unit?*

FOR YEARS, we of the staff of Science Service, the non-profit institution for the dissemination of scientific knowledge, have received requests like these three above.

In the past we had no way to meet the requests, but all during 1941 we were introducing *the new way:* through THINGS of science. The people whose letters are quoted above know what it is to get each month, a packet, a big envelope, or a mailing carton of scientific objects—THINGS of science.

Would you like to have samples of new and unusual substances, materials of many kinds during the coming months?

If so, we invite you to join our new group. To each member we will each month dispatch *a unit of scientific material,* unusual, intriguing, surprising. With each unit we will supply a brief, clear explanation of its contents.

Since this is a non-profit organization, THINGS does not attempt to make money, so the membership charge for six months has been set at $2. You are invited to become a member. We recommend that you send us the following application form *immediately* because when the available new memberships are all taken up, the roster will have to be closed.

To *Things* of science Date_____

Science Service Building
1719 N Street, N.W., Washington, D. C.

I hereby apply for Membership in the science group organized to receive THINGS of science, one unit to be dispatched to me each month, all postage charges prepaid, for six months, $2 ☐
for one year, $4 ☐
☐ $_____is enclosed OR ☐ Send bill.

*Name*_____
Please Write Plainly

*Mailing Address*_____

*City & State*_____

Some units being planned for the Members:

CALCITE

This unit will contain a valuable specimen of Calcite or Iceland Spar, from America's only mine for this material important in defense. This is a real prize! With it members can perform experiments in optics. These experiments can be performed without buying additional equipment. Calcite has the property of double refraction—one line on a piece of paper looks double when viewed through it.

INDICATORS

Experimenters require a variety of substances to indicate the presence of acids or alkalis. For example, litmus paper. There are many other indicators most useful in medicine and chemistry, including nitrazine, phenolphthalein, etc. Included with specimens of such indicators will be our explanation which tells about many tests and experiments members can try.

TASTE

What does paraethoxyphenolthiocarbamide taste like? And other substances, with simple or complicated names—what do they taste like, and what do your own reactions mean? Members who want to know what kind of taste buds they inherited will especially enjoy this unit. A full explanation will accompany the materials, describing interesting experiments and the conclusions which may be drawn.

AND . . .

Other THINGS units are being planned, on such subjects as Detergents, Synthetic Flavors, Concentrated Foods, Soils, Mathematics, Fluorescence, Milk Products, Transparent Packaging, for example. The Staff is gathering materials a full year ahead, so in spite of conditions of scarcity, members enrolling now can be assured of receiving their monthly units for the entire time.

MESSAGE TO SCHOOLS

In addition to a clear explanation of the material in each unit of THINGS, we supply a museum-style legend card of bristol board for use in a laboratory display cabinet.

CONSERVATION

NATURE RAMBLINGS

by Frank Thone

A Break for Whales

WHALES in Antarctic regions may be getting a break at last as a result of the entry of Japan into the war. If their whaling fleet of six or seven factory ships and 40 or more killer boats was given sufficient warning of their government's intention to run amok and stayed home, that means a lease on life to the 10,000 to 12,000 whales they would have slaughtered during the current season. If they did go out in October, and are now on the whaling grounds, they will probably be rounded up by New Zealand cruisers in short order, or at any rate driven into the long, precarious northward cruise home.

Nobody in this country seems to know where the Japanese whaling fleet is. Normally, the ships stop at the port of Freemantle, near the southwestern corner of Australia, on the way to and from the whaling grounds. But Australian authorities here either don't know, or if they do know they aren't telling.

Of the European whaling fleets, only the English and part of the Norwegian ships are free to go into the Antarctic. The few whalers that Germany had have been tied up in Hamburg harbor since the outbreak of war in the autumn of 1939. They may have been blown to bits or burned to the water's edge by the many fierce blastings which RAF bombers have loosed on Hamburg. One or two of the Norse ships were sunk, at least one captured by the Germans and slipped through the British blockade to a German port. Some of the others are carrying gasoline and oil to England.

There is little doubt that at least part of the whaling fleet is at work in the Antarctic, because whale oil is used in Britain as a source of both food fats (margarine) and soap. But the total take will undoubtedly be much smaller during the present Antarctic summer.

Absence of the Japanese ships will be especially beneficial to the whales, because of all the nations engaged in whaling only the Japanese would not sign the international convention for the conservation of whales, to which even the Nazis subscribed. They killed recklessly and wastefully, in utter disregard of the rights of either the whales or the whalers under other flags. They made themselves the most thoroughly unpopular persons in all the Far South seas.

Science News Letter, February 14, 1942

HOROLOGY

"War Time" Is Name Given To New Advanced Time

WAR TIME was the designation given by President Roosevelt to the daylight saving time put into effect Feb. 9. (See SNL, Feb. 7, p. 83) The abbreviations are EWT, CWT, MWT, PWT, depending upon whether Eastern, Central, Mountain, or Pacific time zones are meant.

Science News Letter, February 14, 1942

THE NAVY "E" pennant flying over the Bausch & Lomb plant is official recognition of accomplishment in Production for Victory. It symbolizes a singleness of purpose that justifies any sacrifice you or we may be called upon to make.

Today... I Helped a Man Make Sugar in Cuba

GEORGE HUGHES has never seen a field of cane bowing in the winds nor heard the crushing rumble of huge cylinders pressing out the juice. But, in the cube of sugar he drops into his cup, he can see the summation of his work. He is one of the many skilled workmen who help to make the Bausch & Lomb Saccharimeters.

The Bausch & Lomb Saccharimeter is made by American workmen, in an American plant. It measures standards of quality for the sugar that sweetens America's coffee—frees the sugar refiners of the New World from European dependence.

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New Machines And Gadgets

Novel Things for Better Living

Dry warm air is needed for many processes connected with the war industries, such as drying black powder, making plastic bonded plywood for airplanes, processing lenses and assembling optical instruments, in the manufacture of engine magnetos and control instruments. To dry air without refrigerating it has hitherto required costly chemicals, used mostly in laboratories. Now a cheap substance has been produced that makes it possible for any factory requiring it to have a dehydration plant.

A new odorless paint, recently introduced, solves the problem of offensive paint odor. It is not perfumed but actually deodorized. This characteristic is particularly important when office, factory or other workplace must be repainted while the work goes on, as it must in these days.

Fibrated leather material has been introduced to replace the gaskets of rubber, cork, hemp and other vegetable substances formerly used for them and now hard to obtain. The leather is separated into its countless fibers and these are recombined with a protein adhesive and formed into large sheets from which the gaskets are cut. The material is resistant to hot oil, boiling water and to gasoline.

The tire shown in the illustration is being prepared for retreading by having its surface roughened so that the new tread will bond itself closely with the old tire and won't come off. The roughening is being done with a retreading brush composed of rope-twisted wires with needle points. The brush is sturdy and durable and the wires won't come out, due to a patented device. It is expected to speed up the rebuilding of tires to meet the great civilian demand expected.

Loss of gasoline in storage tanks can be reduced by a new white paint, having 10 to 15% higher reflecting power than aluminum paint. This reduces inside temperatures, keeps the gas cooler, and so cuts down evaporation losses. The new paint is resistant to oil and water, and can be put on with brush or spray.

Synthetic sponge rubber that is more resistant to oil, grease and other solvents than the natural product can replace the latter with advantage in many applications. The new sponge rubber is a synthetic rubber like that now being used for tires and is made from petroleum.

Plastic tubing can be substituted for copper gas lines. The plastic, vinylidene chloride, is flexible, semi-transparent and tough. It is unusually resistant to moisture, brines, solvents, acids and alkalies. Although the plastic softens at high temperature, the tubing can be used for short periods of time up to 275 degrees Fahrenheit with little loss of strength and resistance. The tubing may be joined by standard couplings or flare type fittings.

Puffed soy beans, analogous to puffed rice and other "exploded" cereals, may become an acceptable breakfast dish, according to the claims of a recent patent. The bitter beany flavor of soy beans has hitherto prevented this. Accordingly, the invention is mainly a method of removing this undesirable flavor. The hulls that remain as a by-product may also be turned to useful purposes, the inventor states.

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, *1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin No. 91.*

Science News Letter, February 14, 1942

AERONAUTICS

Weedy Fields With Bushes Best For Air Bases

WEEDY fields, dotted with low bushes and fringed with trees, are far better for war-time air bases than the beautiful, flat, pasture-like expanses of well-kept commercial airports, Maj. Hans C. Adamson, special assistant to the Chief of Army Air Forces, stated in an address at Schenectady, N. Y. Such ill-kempt looking areas are naturally camouflaged, and are exceedingly difficult to detect from the air.

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☐ Enroll me as an associate of Science Clubs of America. 25 cents is enclosed.

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☐ Start / ☐ Renew my subscription to SCIENCE NEWS LETTER for ☐ 1 year, $5 / ☐ 2 years, $7

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To THINGS of Science, 1719 N St., N. W., Washington, D. C.

☐ Enter / ☐ Renew my membership in THINGS for ☐ 6 months, $2 / ☐ 1 year, $4

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City and State.....

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A wild-looking field of this kind, somewhere in the United States, was described by Maj. Adamson. The airplanes are hidden in little ravines, in thickets and beneath trees. Quarters for the men and necessary service buildings, more than 120 structures in all, are all similarly "sunk" into the landscape. No roof rises above treetop level.

As explained by Maj. Adamson, the fundamental principle of camouflage is to avoid hard, straight, continuous lines. Such lines are not found in nature, and when introduced into the landscape they are easy to find on air photographs —and a stand-out invitation to bombers making a return visit.

Science News Letter, February 14, 1942

ASTRONOMY

Big Telescope for Mexico Sent By Truck From Harvard

New Instrument for National Astrophysical Observatory Is Symbol of Spirit of Inter-American Cooperation

THE second largest telescope for Latin America has rolled down to Mexico by truck after having been inspected by the staff of the Mexican Embassy in Washington, D. C.

At dawn on Saturday, January 31, this new and modern telescope left the Harvard Observatory, where it was built, with Dr. Harlow Shapley, director of the Harvard Observatory, driving the first lap of its long journey to a hill in the ancient valley of Cholula near Puebla, Mexico.

There the new telescope will go into service at Mexico's new National Astrophysical Observatory as a symbol of the spirit of Inter-American cooperation. Its dedication by President Avila Camacho on February 17 will be the occasion of of an Inter-American Scientific Conference.

The new telescope is of the Schmidt type that is more effective for the exploration of the universe of stars and galaxies than more conventional instruments of much larger size. Its spherical mirror has a diameter of 31 inches while the correcting lens of 27 inches diameter insures excellent star images over a large range of sky.

The only larger instrument in Latin America is the 60-inch reflecting telescope of the Argentine National Observatory at Cordova, but the new Mexican instrument because of its more modern design will do several types of work better than the Argentinian telescope.

Despite war priorities and labor shortages, the new telescope was built in the record time of six months. The mirror and plate are optically accurate to within a few millionths of an inch. The mounting of duraluminum and cast iron weighs 4,500 pounds and consists of a tube fourteen feet long and four feet in diameter and a polar axis of 11 feet.

At Laredo, Texas, the truck was met by Prof. Luis Enrique Erro, director of the new Mexican Observatory, and sped to Tonanzintla so that the telescope may be installed for the dedication.

Science News Letter, February 14, 1942

MEDICINE

Organized Blood Bank Is Complex Job

BETWEEN the donor station where you may give your blood to save life and the hospital blood bank where it is on call for desperately sick patients lies a complicated organization of doctors, nurses, technicians, record clerks and general management.

When the New York Academy of Medicine and the Blood Transfusion Betterment Association first started on the blood plasma for Britain project, in 1940, they thought it would be relatively simple and that preparing plasma "would be not much more difficult than mixing a cocktail," one of their officers, Dr. DeWitt Stetten, reports. Much to their distress, they learned that such was not the case.

A community hospital about to establish its own blood bank does not face quite so many problems. It must, however, equip itself with such things as iceboxes, incubators, centrifuges, electric pumps, and suitable bottles for collection and for storage of the blood.

One important problem it must settle is whether to establish a blood bank or a plasma bank. Some hospitals have both. Plasma is blood minus the red blood cells. These may be removed by allowing them to settle out of the blood, or they may be separated from the fluid portion by centrifuging the blood, as cream is separated from milk.

Plasma is considered nearly as satisfactory as whole blood for transfusions. Its chief disadvantage is that it does not contain the coloring matter in the red cells, hemoglobin, which carries oxygen. In some conditions such as severe anemia or poisonings such as carbon monoxide or nitrobenzol which damage the red blood cells, whole blood may be preferred to plasma.

Plasma has the advantages of keeping longer and of being usable without typing or matching with the patient's blood. It may also be dried, which makes it easy to transport. Dried plasma keeps several years without refrigeration.

Typing before use is unnecessary when plasma from many people is put into a common pool. This pooling greatly dilutes the agglutinins from each person's blood and thus avoids the danger of a patient getting so much of the wrong kind of agglutinin that his red blood cells would be clumped together or otherwise kept from their vital job of carrying oxygen to all parts of the body. Before pooling each collection of plasma is of course tested to make sure it is free from dangerous disease germs.

Science News Letter, February 14, 1942

Usual height of a stroke for the big diamond back *rattler* is about the middle calf of the leg, not higher.

Though *aluminum* was a curiosity as late as 1855, this element comprises 7.3% of the earth's crust.

If iron and steel were not so cheap, shipbuilders would use other metals or alloys more resistant to *corrosion*.

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•First Glances at New Books

ANTHROPOLOGY

THE MYTH OF THE NEGRO PAST—Melville J. Herskovits—*Harper,* 374 p., $4. Student after student, says this anthropologist, has been content to repeat propositions concerning Negro endowment and the Negro past without critical analysis. In this study, he sets forth five disparaging beliefs about the Negro which he pronounces myths, and marshals evidence to show that the African cultural heritage has value for understanding Negro problems today, and value also for the race to understand itself.

Science News Letter, February 14, 1942

ANTHROPOLOGY

ETHNOGRAPHIC BIBLIOGRAPHY OF NORTH AMERICA—George Peter Murdock—*Yale Univ. Press,* 168 p., $2. (Yale Anthropological Studies, Vol. 1). Anthropologists will appreciate this reference list of publications, old and new, dealing with Indian and Eskimo. The author has classified the material according to areas with subdivisions of 253 tribal groups.

Science News Letter, February 14, 1942

BIOLOGY

BIOLOGICAL ABSTRACTS, Section F, Animal Production and Veterinary Science (Vol. 16, No. 1, Jan., 1942)—*Biological Abstracts,* $5 per year (10 issues). A new section will henceforth be issued as part of *Biological Abstracts,* and may be obtained as integrally with the whole journal or subscribed for separately. Everyone interested in animal husbandry and veterinary medicine will take a special interest in this section; and it will be useful as well to zoologists in general.

Science News Letter, February 14, 1942

EDUCATION

THE NATURE AND USE OF READING TESTS—Arthur E. Traxler—*Science Research Associates,* 64 p., 90 c.

Science News Letter, February 14, 1942

ENTOMOLOGY

A CLASSIFICATION OF THE SCALE INSECT GENUS ASTEROLECANIUM—Louise M. Russell—*Govt. Print. Off.,* 322 p., 45c. (U. S. Dept. of Agriculture Misc. Pub. No. 424).

Science News Letter, February 14, 1942

TECHNOLOGY

WOODWORKING WORKBOOK FOR HIGH SCHOOLS—Talmage Nichols and Harold L. Stiles—*Manual Arts Press,* 63 p., illus., 68c. A compact but surprisingly comprehensive workbook for classes in woodworking. Besides telling how to turn lumber into furniture and other useful articles, it manages to tuck in quite a bit of information about types of wood, history and care of tools, and a number of other related subjects.

Science News Letter, February 14, 1942

MARINE BIOLOGY

OYSTERS HAVE EYES, OR THE TRAVELS OF A PACIFIC OYSTER—Eldon Griffin—*Wilberlilla Publishers, Seattle, Wash.,* 53 p., illus., $1. A chattily written, amusing but informative booklet about oysters on the Pacific Coast of the United States.

Science News Letter, February 14, 1942

ENTOMOLOGY

INSECT PESTS—William Clunie Harvey and Harry Hill—*Chemical Pub. Co.,* 292 p., illus., $4.25. A book about insect pests in Britain, of interest to American entomologists because we have a considerable number of species in common; also for purposes of comparing our respective regional conditions.

Science News Letter, February 14, 1942

ORNITHOLOGY

THE WHITE-CROWNED SPARROWS (ZONOTRICHIA LEUCOPHRYS) OF THE PACIFIC SEABOARD: ENVIRONMENT AND ANNUAL CYCLE—Barbara D. Blanchard—*Univ. of Calif. Press,* 166 p., illus., $2.

Science News Letter, February 14, 1942

AERONAUTICS

AIR TRANSPORTATION IN THE UNITED STATES, ITS GROWTH AS A BUSINESS—Hugh Knowlton—*Univ. of Chicago Press,* 72 p., $1.25. The business aspects of aviation can also be romantic. The author is a director of Eastern Air Lines as well as member of an investment banking firm.

Science News Letter, February 14, 1942

AERONAUTICS

AIRCRAFT TORCH WELDING—C. Von Borchers and A. Ciffrin—*Pitman,* 157 p., illus., $1.50.

Science News Letter, February 14, 1942

BOTANY

ADDITIONS TO OUR KNOWLEDGE OF THE AMERICAN AND HAWAIIAN FLORAS—Earl Edward Sherff—*Field Museum of Natural History,* 33 p., 20c.

Science News Letter, February 14, 1942

ZOOLOGY

A MIOCENE SEA LION FROM LOMITA, CALIFORNIA—Gretchen M. Lyon—*Univ. of Calif. Press,* 17 p., illus., 25c.

Science News Letter, February 14, 1942

BIOLOGY

ABOUT OURSELVES, A Survey of Human Nature from the Zoological Viewpoint—James G. Needham—*Jaques Cattell Press,* 276 p., ilus., $2.50. It may be more than coincidence that this stimulating approach to the ever-challenging problems presented by what the late E. W. Scripps used to call "this damned human animal" is made by an eminent entomologist. Solomon probably gained much of the wisdom he needed for meeting the human problems of kingship by watching ants. At any rate, this book is a most interesting combination of biology, psychology and anthropology—all three of them really integral parts of what might be called the science of anthropobiology.

Science News Letter, February 14, 1942

MEDICINE

A WOMAN'S HEALTH—William C. Danforth—*Farrar & Rinehart,* 398 p., $2.50. A plainly written book which describes the more common ailments of women. The importance of pre-natal care, advantage of hospital delivery over the home, tests for pregnancy and selection of a physician are discussed. There is an excellent chapter on cancer in women. The author, who is professor of obstetrics and gynecology at Northwestern University Medical School, stresses the importance of early visits to the physician to avoid complications of later life.

Science News Letter, February 14, 1942

ORNITHOLOGY—SPORT

OUR AMERICAN GAME BIRDS—Van Campen Heilner—*Doubleday, Doran,* 168 p., illus. and 19 color plates, $5. A set of magnificent color plates, with informal, chatty text by a triply-qualified author—he is at once naturalist, sportsman and epicure. Whether you are interested in wild birds primarily as birds, or as lawful objects for shooting and for eating afterwards, this is a book worth having.

Science News Letter, February 14, 1942

ARCHAEOLOGY

SOUTHWESTERN ARCHAEOLOGY—John C. McGregor—*Wiley,* 403 p., illus., $5. An up-to-date text for the study of American archaeology in the important Southwestern field. Chapters include discussion of pottery, dendrochronology, archaeological aims and methods, and description of the Indian cultures which have thus far been differentiated.

Science News Letter, February 14, 1942